

## INTERNATIONAL SEARCH REPORT

Int'l. Application No.  
PCT/NL2004/000488

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N9/12 C12Q1/48 C12N15/54 C12N5/10 C12P7/64

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C12N C12Q C12P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, Sequence Search, BIOSIS, WPI Data, PAJ, CHEM ABS Data, EMBASE, MEDLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE Geneseq 'Online! 22 October 2001 (2001-10-22), "Human polypeptide SEQ ID NO 3085." XP002325874 retrieved from EBI accession no. GSP:AAM39940 Database accession no. AAM39940 see sequence -&amp; WO 01/53312 A (HYSEQ, INC; TANG, Y., TOM; LIU, CHENGHUA; ASUNDI, VINOD; CHEN, RUI-HON) 26 July 2001 (2001-07-26)</p> <p>-----</p> <p>-/-</p>	1, 2, 4, 47, 48

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

25 April 2005

Date of mailing of the international search report

08.08.2005

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE Geneseq 'Online! 6 September 2002 (2002-09-06), "Human cytochrome constitutive protein 45." XP002325875 retrieved from EBI accession no. GSN:ABB09578 Database accession no. ABB09578 see sequence -&amp; WO 02/48356 A (BIOWINDOW GENE DEVELOPMENT INC. SHANGHAI; MAO, YUMIN; XIE, YI) 20 June 2002 (2002-06-20) see SEQ ID NOS: 1 and 2 abstract</p> <p>-----</p> <p>DATABASE Geneseq 'Online! 10 February 2003 (2003-02-10), "Human secretory polypeptide SPTM SEQ ID NO 835." XP002325876 retrieved from EBI accession no. GSN:ABP75651 Database accession no. ABP75651 see sequence -&amp; WO 02/083876 A (INCYTE GENOMICS, INC; DAFFO, ABEL; JONES, ANISSA, L; TRAN, ALANNA-PHUN) 24 October 2002 (2002-10-24) see in particular parts referring to human secretory polypeptide SPTM, SEQ ID NO: 835, claim 27</p> <p>-----</p> <p>DATABASE Geneseq 'Online! 18 December 2003 (2003-12-18), "REMAP protein #18." XP002325877 retrieved from EBI accession no. GSN:ADC42858 Database accession no. ADC42858 see sequence -&amp; WO 03/027228 A (INCYTE GENOMICS, INC; LAL, PREETI, G; HONCHELL, CYNTHIA, D) 3 April 2003 (2003-04-03) see in particular parts referring to REMAP protein #18, claim 1, SEQ ID NO: 18</p> <p>-----</p> <p>DATABASE Geneseq 'Online! 1 October 2001 (2001-10-01), "Human bone marrow protein, SEQ ID NO: 346." XP002325878 retrieved from EBI accession no. GSN:AAM00870 Database accession no. AAM00870 see sequence</p>	1,2,4, 47,48
X		1,2,4, 47,48, 54,55
X		1,2,4,7, 47,48
X		1,2,7, 47,48

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	& WO 01/53453 A (HYSEQ, INC; FORD, JOHN, E; BOYLE, BRYAN, J; TANG, Y., TOM; LIU, CHENGH) 26 July 2001 (2001-07-26) see in particular parts referring to SEQ ID NO: 346 and claim 10 -----	
X	DATABASE EPO Proteins 'Online' 2 February 2004 (2004-02-02), "Sequence 8703 from Patent WO0171042." XP002325879 retrieved from EBI accession no. EPOP:CQ580945 Database accession no. CQ580945 see sequence -& WO 01/71042 A (PE CORPORATION) 27 September 2001 (2001-09-27) see in particular parts referring to sequence 8703 -----	1, 2, 7, 47, 48
P, X	HUIITEMA KLAZIEN ET AL: "Identification of a family of animal sphingomyelin synthases." EMBO (EUROPEAN MOLECULAR BIOLOGY ORGANIZATION) JOURNAL, vol. 23, no. 1, 14 January 2004 (2004-01-14), pages 33-44, XP002325870 ISSN: 0261-4189 the whole document -----	1-35, 38-63
P, X	WO 03/073826 A (SAGRES DISCOVERY; MORRIS, DAVID, W) 12 September 2003 (2003-09-12) see the whole document, in particular claim 5, parts referring to mCP2702 and SEQ ID NO: 291 -& DATABASE Geneseq 'Online' 18 November 2004 (2004-11-18), "Mouse protein sequence mCP2702." XP002325880 retrieved from EBI accession no. GSN:ABM85292 Database accession no. ABM85292 see sequence -----	1, 2, 4, 47, 48
P, X	DATABASE Geneseq 'Online' 15 January 2004 (2004-01-15), "Human NOV13a SEQ ID 54." XP002325881 retrieved from EBI accession no. GSN:ADD49081 Database accession no. ADD49081 see sequence -----	1, 2, 4, 47, 48

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	-& WO 03/060149 A (CURAGEN CORPORATION; GROSSE, WILLIAM, M; ALSOBROOK, II, JOHN, P; ANDER) 24 July 2003 (2003-07-24) see parts relating to NOV13a, SEQ ID NO: 54; claim 1; page 167 -----	1,2,4, 47,48
P,X	DATABASE Geneseq 'Online' 20 May 2004 (2004-05-20), "Human disease detection and treatment (MDDT) protein - SEQ ID 116." XP002325882 retrieved from EBI accession no. GSN:ADL22667 Database accession no. ADL22667 see sequence	1,2,4,7, 47,48
P,X	-& WO 03/062379 A (INCYTE GENOMICS, INC; JONES, ANISSA, L; DAHL, CHRISTOPHER, R; GIETZEN,) 31 July 2003 (2003-07-31) see in particular parts referring to MDDT protein, SEQ ID NO: 116, claim 27 -----	1,2,4,7, 47,48
P,X	YAMAOKA SHOHEI ET AL: "Expression cloning of a human cDNA restoring sphingomyelin synthesis and cell growth in sphingomyelin synthase-defective lymphoid cells" JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 279, no. 18, 30 April 2004 (2004-04-30), pages 18688-18693, XP002325871 ISSN: 0021-9258 the whole document -----	1,2,4, 9-33, 38-63
P,A	LUBERTO CHIARA ET AL: "Purification, characterization, and identification of a sphingomyelin synthase from <i>Pseudomonas aeruginosa</i> . PlcH is a multifunctional enzyme." JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 278, no. 35, 29 August 2003 (2003-08-29), pages 32733-32743, XP002325872 ISSN: 0021-9258 -----	
A	LUBERTO CHIARA ET AL: "Sphingomyelin synthase, a potential regulator of intracellular levels of ceramide and diacylglycerol during SV40 transformation: Does sphingomyelin synthase account for the putative phosphatidylcholine-specific phospholipase" JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 273, no. 23, 5 June 1998 (1998-06-05), pages 14550-14559, XP002325873 ISSN: 0021-9258 -----	

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national application No.  
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## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: 3, 5, 6, 8  
because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
2.  Claims Nos.: 3, 5, 6, 8  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple Inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-35, 38-63

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-35, 38-63

Polypeptides having the requested identity to the motifs as given in claim 1 or to the specific amino acid sequences as given in SEQ ID NOS: 12-22, with the mentioned enzymatic activity as described in claims 9-11, the corresponding nucleic acid sequences encoding said polypeptides, plasmids and microorganisms comprising said nucleic acid sequences processes and uses of the enzymes in question and the thereof produced products, methods for improving the yield of an secretion product in a cell and methods for targeting polypeptides in cellular compartments.

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2. claims: 36, 37

Process to isolate candidates for functional genes of a previously unidentified enzyme with known activity.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 3,5,6,8

Claim 1 relates to polypeptides consisting of a sequence which has at least 80% identity to motifs which are defined mainly by variable amino acid residues. Motif (a) for example consists of 7 defined amino acid residues and 53-93 undefined amino acid residues. The requested percentage of identity is not limited to the defined part of the sequence but refers to the complete motif embracing also the undefined part of the motif. Any polypeptide falls into the scope of such a claim, since any amino acid sequence has 80% identity with the undefined part of the motif (and the resulting 20% non-identity? with the fixed part of the motif). Consequently, no meaningful search could be performed for such an unclear claim and thus the search for claim 1 was limited to polypeptides having 100% identity to any of the motifs (a) ? (c). Furthermore, it has to be noted that claim 1 comprises numbers within the motifs which are nowhere explained and thus render the true scope of the claim unclear (Article 6 PCT). From the specific sequences 12-22 it could be derived that ?X(35,75)? must mean 35 to 75 variable amino acid residues (?X(8)? means 8 variable amino acid residues). Furthermore, the amino acids given in square brackets '!' where interpreted as possible alternatives at this position of the motif. Hence, claim 1 was searched with the above mentioned limitation and the interpretation of the unclear terms as given above.

Claim 3 refers to polypeptides having at least 70% similarity to sequences (SEQ ID NO: 1-11) with about 80% undefined amino acid residues. The requested similarity is not limited to the defined parts of the sequence but refers to the complete sequences, including the undefined sections. Hence any polypeptide having any sequence would fall into the scope of such a claim (see also argumentation given for the limited search of claim 1). Since no clear technical features existed for said claim, no meaningful search was possible.

Claim 5 referring to a polypeptide comprising an amino acid sequence with at least 20% identity to any of the SEQ ID NOs: 12-22 is so broad and thus unclear in the sense of Article 6 PCT. Polypeptides having an identity of only 20% with other polypeptides are not sufficiently supported in the description. Furthermore, it appears not very credible that polypeptides being only 20% identical to each other have the same biological function. If they have different functions, then they solve different technical problems. Due to these discrepancies, no meaningful search could be performed for claim 5.

The same applies for claim 6 and claim 8, since identities of 22% or 30% are also not considered significant.

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Continuation of Box II.2

Claims Nos.: 3, 5, 6, 8

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Claim 1 relates to polypeptides consisting of a sequence which has at least 80% identity to motifs which are defined mainly by variable amino acid residues. Motif (a) for example consists of 7 defined amino acid residues and 53-93 undefined amino acid residues. The requested percentage of identity is not limited to the defined part of the sequence but refers to the complete motif embracing also the undefined part of the motif. Any polypeptide falls into the scope of such a claim, since any amino acid sequence has 80% identity with the undefined part of the motif (and the resulting 20% "non-identity" with the fixed part of the motif). Consequently, no meaningful search could be performed for such an unclear claim and thus the search for claim 1 was limited to polypeptides having 100% identity to any of the motifs (a) to (c). Furthermore, it has to be noted that claim 1 comprises numbers within the motifs which are nowhere explained and which render the true scope of the claim unclear (Article 6 PCT). From the specific sequences 12-22 it could be derived that "X(35,75)" must mean 35 to 75 variable amino acid residues ("X(8)" means 8 variable amino acid residues). Furthermore, the amino acids given in square brackets '!' where interpreted as possible alternatives at this position of the motif.. Hence, claim 1 was searched with the above mentioned limitation and the interpretation of the unclear terms as given above.

Claim 3 refers to polypeptides having at least 70% similarity to sequences (SEQ ID NO: 1-11) with about 80% undefined amino acid residues. The requested similarity is not limited to the defined parts of the sequence but refers to the complete sequences, including the undefined sections. Hence any polypeptide having any sequence would fall into the scope of such a claim (see also argumentation given for the limited search of claim 1). Since no clear technical features existed for said claim, no meaningful search was possible.

Claim 5 referring to a polypeptide comprising an amino acid sequence with at least 20% identity to any of the SEQ ID NOs: 12-22 is so broad and thus renders the true scope of the claim unclear (Article 6 PCT). Polypeptides having an identity of only 20% with other polypeptides are not sufficiently supported in the description. Furthermore, it appears not very credible that polypeptides being only 20% identical to each other have the same biological function. If they have different functions, then they solve different technical problems. Due to these discrepancies, no meaningful search could be performed for claim 5. The same applies for claim 6 and claim 8, since identities of 22% or 30% are also not considered significant.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

Int'l Application No  
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Patent document cited in search report	Publication date		Patent family member(s)		Publication date
WO 0153312	A	26-07-2001	US 6569662 B1		27-05-2003
			AU 2292401 A		31-07-2001
			AU 2591801 A		31-07-2001
			AU 2593601 A		31-07-2001
			AU 2595501 A		31-07-2001
			AU 2596501 A		31-07-2001
			AU 2598301 A		31-07-2001
			AU 2728401 A		31-07-2001
			AU 2734401 A		31-07-2001
			AU 2734801 A		31-07-2001
			AU 2738501 A		31-07-2001
			AU 3265701 A		31-07-2001
			CA 2395443 A1		26-07-2001
			CA 2395731 A1		26-07-2001
			CA 2395736 A1		26-07-2001
			CA 2395749 A1		26-07-2001
			CA 2395763 A1		26-07-2001
			CA 2395770 A1		26-07-2001
			CA 2402563 A1		26-07-2001
			EP 1242596 A1		25-09-2002
			EP 1240178 A2		18-09-2002
			EP 1242580 A1		25-09-2002
			EP 1242443 A1		25-09-2002
			EP 1250346 A2		23-10-2002
			EP 1254256 A2		06-11-2002
			EP 1248848 A1		16-10-2002
			JP 2004508804 T		25-03-2004
			JP 2004515206 T		27-05-2004
			MX PA02006193 A		09-12-2002
			WO 0153312 A1		26-07-2001
			WO 0153453 A2		26-07-2001
			WO 0153326 A1		26-07-2001
			WO 0153454 A2		26-07-2001
			WO 0153455 A2		26-07-2001
			WO 0153456 A2		26-07-2001
			WO 0153466 A1		26-07-2001
			WO 0152616 A2		26-07-2001
			WO 0153500 A1		26-07-2001
			WO 0153515 A1		26-07-2001
			WO 0153485 A1		26-07-2001
			US 2003104529 A1		05-06-2003
			US 2004048249 A1		11-03-2004
			US 2003219744 A1		27-11-2003
			US 2004219521 A1		04-11-2004
			US 2003211987 A1		13-11-2003
			US 2003224379 A1		04-12-2003
			US 2004022786 A1		05-02-2004
			US 2004023870 A1		05-02-2004
			US 6586390 B1		01-07-2003
			US 6465620 B1		15-10-2002
WO 0248356	A	20-06-2002	CN 1333280 A		30-01-2002
			AU 2337702 A		24-06-2002
			WO 0248356 A1		20-06-2002
WO 02083876	A	24-10-2002	CA 2442705 A1		05-12-2002
			CA 2447183 A1		10-10-2002
			CA 2447212 A1		24-10-2002

**INTERNATIONAL SEARCH REPORT**

...Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 02083876	A	EP	1409504 A2	21-04-2004
		EP	1383894 A2	28-01-2004
		WO	02083876 A2	24-10-2002
		WO	02079449 A2	10-10-2002
		WO	02097031 A2	05-12-2002
WO 03027228	A 03-04-2003	CA	2453985 A1	03-04-2003
		EP	1537138 A2	08-06-2005
		JP	2005508631 T	07-04-2005
		WO	03027228 A2	03-04-2003
		US	2004248251 A1	09-12-2004
		AU	2002364890 A1	30-06-2003
		WO	03052049 A2	26-06-2003
		US	2004249128 A1	09-12-2004
WO 0153453	A 26-07-2001	US	6569662 B1	27-05-2003
		AU	2292401 A	31-07-2001
		AU	2591801 A	31-07-2001
		AU	2593601 A	31-07-2001
		AU	2595501 A	31-07-2001
		AU	2596501 A	31-07-2001
		AU	2598301 A	31-07-2001
		AU	2728401 A	31-07-2001
		AU	2734401 A	31-07-2001
		AU	2734801 A	31-07-2001
		AU	2738501 A	31-07-2001
		AU	3265701 A	31-07-2001
		CA	2395443 A1	26-07-2001
		CA	2395731 A1	26-07-2001
		CA	2395736 A1	26-07-2001
		CA	2395749 A1	26-07-2001
		CA	2395763 A1	26-07-2001
		CA	2395770 A1	26-07-2001
		CA	2402563 A1	26-07-2001
		EP	1242596 A1	25-09-2002
		EP	1240178 A2	18-09-2002
		EP	1242580 A1	25-09-2002
		EP	1242443 A1	25-09-2002
		EP	1250346 A2	23-10-2002
		EP	1254256 A2	06-11-2002
		EP	1248848 A1	16-10-2002
		JP	2004508804 T	25-03-2004
		JP	2004515206 T	27-05-2004
		MX	PA02006193 A	09-12-2002
		WO	0153312 A1	26-07-2001
		WO	0153453 A2	26-07-2001
		WO	0153326 A1	26-07-2001
		WO	0153454 A2	26-07-2001
		WO	0153455 A2	26-07-2001
		WO	0153456 A2	26-07-2001
		WO	0153466 A1	26-07-2001
		WO	0152616 A2	26-07-2001
		WO	0153500 A1	26-07-2001
		WO	0153515 A1	26-07-2001
		WO	0153485 A1	26-07-2001
		US	2003104529 A1	05-06-2003
		US	2004048249 A1	11-03-2004
		US	2003219744 A1	27-11-2003

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Information on patent family members

International Application No

PCT/NL2004/000488

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
WO 0153453	A	US	2004219521	A1	04-11-2004
		US	2003211987	A1	13-11-2003
		US	2003224379	A1	04-12-2003
		US	2004022786	A1	05-02-2004
		US	2004023870	A1	05-02-2004
		US	6586390	B1	01-07-2003
		US	6465620	B1	15-10-2002
WO 0171042	A	27-09-2001	AU	4594501 A	03-10-2001
			WO	0171042 A2	27-09-2001
WO 03073826	A	12-09-2003	US	2002182586 A1	05-12-2002
			AU	2003219959 A1	16-09-2003
			CA	2477974 A1	12-09-2003
			WO	03073826 A2	12-09-2003
WO 03060149	A	24-07-2003	US	2004072997 A1	15-04-2004
			AU	2003209162 A1	30-07-2003
			CA	2471480 A1	24-07-2003
			WO	03060149 A2	24-07-2003
			AU	2003209163 A1	24-07-2003
			CA	2470012 A1	17-07-2003
			WO	03057854 A2	17-07-2003
			US	2004043929 A1	04-03-2004
WO 03062379	A	31-07-2003	WO	03062376 A2	31-07-2003
			WO	03062379 A2	31-07-2003
			WO	03062385 A2	31-07-2003